

## CLAIMS

1) Method for regenerating a particle filter (10) built into an exhaust line (12) of an internal combustion engine (34), with the exhaust gases passing through the filter from an inflow face (16) to an outflow face (18), characterized in that, during filter regeneration:

- the internal temperature of at least two regions of the filter (10) is monitored;
- the oxygen level of the exhaust gases is reduced when at least one of the temperatures monitored is greater than a critical temperature;
- the oxygen level of the exhaust gases is increased to continue filter regeneration when all the temperatures monitored are less than the critical temperature.

2) Regeneration method according to Claim 1, characterized in that the internal temperature of one region of filter (10) is monitored near its inflow face (16).

3) Regeneration method according to Claim 1 or 2, characterized in that the internal temperature of one region of filter (10) is monitored near its outflow face (18).

4) Regeneration method according to one of Claims 1 to 3, characterized in that the internal temperature of a middle region of filter (10) is monitored.

5) Regeneration method according to one of Claims 1 to 4, wherein desulfation of a NO<sub>x</sub> trap (58) is performed, characterized in that the internal temperature of at least two regions of filter (10) is monitored after desulfation of trap (58).

6) Regeneration method according to Claim 1, characterized in that the oxygen level of the exhaust gases is reduced by operating the engine in rich mode.

7) Regeneration method according to Claim 1, characterized in that the oxygen level of the exhaust gases is increased by operating the engine in lean mode.

8) Device for regenerating a particle filter (10) built into an exhaust line (12) of an internal combustion engine (34), said filter having an exhaust gas inflow face (16) and outflow face (18), characterized by including at least two temperature sensors (24, 26, 28) located inside the filter.

9) Regeneration device according to Claim 8, characterized in that a temperature sensor (26) is placed in the vicinity of the inflow face (16) of the filter.

10) Regeneration device according to Claim 8 or 9, characterized in that a temperature sensor (24) is placed in the vicinity of the outflow face (18) of the filter.

11) Regeneration device according to one of Claims 8 to 10, characterized in that a temperature sensor (28) is placed in a middle region of the filter.

12) Regeneration device according to one of Claims 8 to 11, characterized in that the particle filter (10) includes catalytic phases for treating pollutants contained in the exhaust gases.